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UNDERSTANDING ONLINE FINANCIAL COMMUNITIES: WHAT CONSTITUTES A VALUABLE INFORMATION EXCHANGE FOR USERS?

Ann-Kathrin Hirzel

Frankfurt School of Finance & Management, a.hirzel@fs.de

Michael Leyer

University of Rostock, michael.leyer@uni-rostock.de

Nick Russell

Queensland University of Technology, n.russell@qut.edu.au

Alistair Barros

Queensland University of Technology, alistair.barros@qut.edu.au

Jürgen Moormann

Frankfurt School of Finance & Management, j.moormann@fs.de

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UNDERSTANDING ONLINE FINANCIAL COMMUNITIES: WHAT CONSTITUTES A VALUABLE INFORMATION EX- CHANGE FOR USERS?

Complete Research

Hirzel, Ann-Kathrin, Frankfurt School of Finance & Management, Frankfurt, Germany,
a.hirzel@fs.de

Leyer, Michael, University of Rostock, Rostock, Germany, michael.leyer@uni-rostock.de

Russell, Nick, Queensland University of Technology, Brisbane, Australia,
n.russell@qut.edu.au

Barros, Alistair, Queensland University of Technology, Brisbane, Australia,
alistair.barros@qut.edu.au

Moormann, Jürgen, Frankfurt School of Finance & Management, Frankfurt, Germany,
j.moormann@fs.de

Abstract

Financial service providers continually struggle to attract and maintain customer interest in their company-hosted virtual communities. These are expected to improve the low level of individual involvement and emotional attachment to financial products and services. Based on Bandura's social cognitive theory, we argue that the content and type of user interaction associated with a created environment influences the level of user issue involvement, which in turn exemplifies the user's interest in and valuation of the content associated with a virtual community. In particular we examine whether the range of topics, types of contribution and responsiveness of interactions are contributors to the overall level of interest of users in virtual financial communities. Our results, derived from an inductive content analysis based on 8,855 posts from 1,447 users across three virtual financial communities, show that specific topics discussed in a virtual community can have a significant positive influence on a user's overall topic interest. Moreover, a significant positive relationship was found between the type of contribution (e.g., questions, statements or answers) and the extent of a user's topic interest. Furthermore, our results reveal that the timeliness of responses influences a user's topic interest in a positive way. However, the overall number of responses related to a specific topic does not play a significant role in any of the communities analysed. This research contributes to a better understanding of virtual communities in the service industry and provides evidence of the importance of content as key driver of user involvement.

Keywords: content analysis, issue involvement, virtual community, financial services

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1 Introduction

Financial service providers face intense competition as a result of decreasing barriers to market entry due to the digital nature of their products and services on a global basis. New competitors (commonly known as FinTechs) are able to enter the market internationally with new service offerings tailored to meet changing customer preferences (Hatzakis et al., 2010). In order to respond to these threats and maintain lasting as well as profitable relationships with their customers, one opportunity for financial service providers is to use social media (Casaló et al., 2008). Within this domain, virtual communities have the potential to be a highly effective means for customers to exchange and share their word-of-mouth experiences in relation to financial topics (Barnatt, 1998). Thus, social media provide a communication opportunity that would otherwise be unavailable to customers.

When seeking financial information, people can talk directly with providers, e.g., banks or insurance companies, utilise independent financial advisors, or simply interact with friends. However, people may not trust financial advisors as they often recommend products or services from which they personally benefit. In contrast, the exchange of knowledge with friends on financial topics is often limited as not everybody likes to talk about such matters and the exchange is bound to a customer's circle of acquaintances. Thus, from a customer point of view, virtual communities can provide a suitable vehicle for communication and ideally a social network (Hagel and Armstrong, 1997) in which individuals can exchange knowledge and information with independent parties on financial products and services in an anonymous way. Additionally, a virtual community embedded in a company's virtual presence can reduce customer transaction costs by providing a "peer-to-peer problem solving" tool (Wiertz and de Ruyter, 2007, p. 347) and supporting customers in their decision processes.

From a company's point of view, socially-generated content as well as the users themselves can be extremely valuable for financial services providers (Ridings et al., 2002). However, building a thriving virtual community seems to be difficult and a large number of virtual communities fail to reach a critical mass of users (Barnatt, 1998; Raban et al., 2010). In order to arouse an individual's interest in participating in a virtual community, the two most important factors are seen to be the ability to receive social support and the exchange of knowledge on specific topics (Wellman and Gulia, 1999; Wasko and Faraj, 2000; Ridings and Gefen, 2004).

The latter factor is particularly important for company-hosted communities. According to earlier studies on virtual communities, individuals are more likely to participate in virtual communities if they are involved with the content discussed in the community (Baym, 1993; Barnatt, 1998; Casaló et al., 2007; Wang et al., 2012). A psychological study by Petty and Cacioppo (1981) confirms that relevance of or involvement with an object in a discussion is necessary before an active attention to the discussion is established. Involvement theory (Greenwald and Leavitt, 1984) associates individual's involvement with a qualitatively high level of "cognitive activity that (1) requires increasing amounts of attentional capacity and (2) produces increasingly durable effects on memory" (Greenwald and Leavitt, 1984, p. 584). Wang et al. (2012) use the concept of issue involvement in the context of virtual communities. In this context, issue involvement is taken to represent the user's interest in their particular informational requirements that need to be satisfied by, and the value that they ascribe to, the content within a given virtual community. However, involvement theory suggests that an individual's level of involvement depends on three factors: personal characteristics, stimuli characteristics and situational characteristics (Zaichkowsky, 1986). Stimuli characteristics are associated with features such as the number of alternatives or the content of communications. Consequently, relevant content increases the user's level of issue involvement, which impacts their choice to participate in a virtual community, and thus contributes to a community's overall success (Casaló et al., 2007).

Studies by Hagel and Armstrong (1997) and Barnatt (1998) indicate that financial service providers particularly struggle at involving customers in their content and thus reaching the critical mass required to successfully operate virtual communities. The products and services of financial service providers are known to induce a low degree of involvement and emotion in people (Barnatt, 1998). Thus, it is especially difficult for this industry to attract and maintain a significant number of users in virtual

communities (Barnatt, 1998). Hence, the following research question can be posed: *Which forms of content lead to greater issue involvement by people in virtual financial communities?*

We use social cognitive theory (Bandura, 1986) as the theoretical lens for our inquiry. According to this theory, virtual communities are embedded in an imposed environment, a selected environment, and a created environment. Prior research on virtual communities has focused mainly on the imposed or selected environment, examining issues ranging from system factors, such as system interactivity (Wang et al., 2012), privacy and security policies (Wu et al., 2010; Zhang et al., 2010), to social capital factors, such as trust (Ridings et al., 2002; Wu et al., 2010), identification and shared values (Zhou, 2011), satisfaction (Wu et al., 2010) and commitment (Wasko and Faraj, 2005; Wiertz and de Ruyter, 2007; Bateman et al., 2011). Little work has been done that focuses on the created environment, such as user-generated content in virtual communities, even though it can be assumed that the type of content influences the user's choice to participate in a virtual community. This is in line with a general lack of qualitative studies investigating the rich, socially-generated content available in virtual communities to derive insights into users' interests and preferences.

In addressing the research question, we present empirical results from an inductive content analysis based on the examination of 8,855 posts from 1,447 distinct users across three virtual financial communities in Germany. This article is the first to report on the positive effect of content on user issue involvement in the financial services domain. The article is structured as follows. Section 2 provides theoretical background on company-hosted virtual communities and develops the hypotheses drawn from the research question. Section 3 presents the methodology and data used. Section 4 delivers the results of our investigation, which are then discussed in Section 5. Conclusions are drawn in Section 6.

2 Theoretical background

2.1 The role of company-hosted virtual communities

A virtual community can be defined as a virtual meeting-place for a group of individuals with common interests or goals using the internet to sustain social relations around a common interest (Barnatt, 1998; Ridings et al., 2002; Flavián and Guinalíu, 2005; Royo-Vela and Casamassima, 2011). Group members do not depend on a common geographic location or on physical interaction to maintain their social interactions on a regular basis (Ridings et al., 2002). In relation to the business context, we follow the definition of Wiertz and de Ruyter (2007) and define a company-hosted virtual community as an aggregation of (primarily) customers of the provider company "who collectively co-produce and consume content about a commercial activity that is central to their interest by exchanging intangible resources" (Wiertz and de Ruyter, 2007, p. 349). Examples of such commercial virtual communities include brand or service support communities.

Company-hosted virtual communities present a unique opportunity for companies to create and maintain customer-relationships, to gain feedback on products and services, and to enhance the brand awareness and loyalty of customers. According to Hagel and Armstrong (1997) virtual communities provide a kernel for an entirely new business model. This is achieved by creating "reverse markets" in which the direction of interaction between the provider company and the customer is shifted. The customer is no longer "information challenged", as companies are no longer predominantly in control of product- and service-related information (Hagel and Armstrong, 1997).

Barnatt (1998) examines virtual communities in the domain of financial service providers. He argues that the direct and indirect interactions between a bank and its customers change significantly when these interactions occur through a virtual community. This finding is in line with earlier work (Hagel and Armstrong, 1997). Traditionally, banks are connected with individual customers in a 1:1 relationship. As a consequence of establishing a virtual community, customers are directly connected with each other in addition to the 1:1 relationship they have with the financial service provider. This means the provider is no longer the centre of attention. Connected customers can inform each other about bank products and services without any involvement from the bank or their financial advisors. Thus,

virtual communities advance customer communication significantly (Barnatt, 1998) and provide access to a wider range of independent expertise (Barnatt, 1998; Wiertz and de Ruyter, 2007).

The latter observation can also be understood as a shortcoming of company-hosted virtual communities. Incorrect information exchange or the inappropriate behavior of users which occurs on a company's website can lead to brand damage and destroy a host's reputation. Thus, host companies need to consider additional measures for supervising their virtual community.

2.2 Theoretical foundation and hypotheses

We apply social cognitive theory (SCT) as the theoretical lens for our inquiry. A broad range of theories has been used in the Information Systems literature to explain individual's usage of information systems. In comparison to other theories (motivational model, theory of planned behavior, technology acceptance model, model of PC utilisation and innovation diffusion model and social cognitive theory), SCT provides an effective mechanism across different test settings to explain user intentions when using information technologies (Venkatesh et al., 2003).

SCT was initially developed by Bandura (1986) and extended in the context of computer utilisation by Chompeau and Higgins (1995) based on a causal model of triadic reciprocal causation to explain human behavior. The theory is founded on the assumption that an individual's decision to use a certain information technology, such as a virtual community, is affected by his or her personal characteristics and environmental factors. In turn, this decision affects personal characteristics as well as the environment. Thus, these three variables, i.e., environmental factors, personal influences, and behavioral patterns, and their influence on human behavior, are understood as interacting variables which determine "one another bidirectionally" (Bandura, 2001, p. 23). Following Bandura's argument that the environment cannot be seen as "a monolithic entity", social cognitive theory differentiates between three types of environmental structures: (1) imposed environment, (2) selected environment, and (3) created environment. Individuals must accept the imposed physical environment "whether they like it or not" (Bandura, 2001, p. 23). The only choice they have is in their reaction to the environment. Moreover, the choice of activities and milieus create the selected environment. The created environment does not exist and cannot be selected. It must be created as a social environment based on the efforts of the associated individuals (Bandura, 2001). According to SCT, an individual's decision to participate in a virtual community is not only dependent on the interface and functionality (imposed and selected environment) of a community but also on its content, reflecting the created environment.

However, many studies on virtual communities (Ridings et al., 2002; Wasko and Faraj, 2005; Wiertz and de Ruyter, 2007; Wu et al., 2010; Zhang et al., 2010; Bateman et al., 2011) focus on the imposed or selected environment of communities. Based on SCT, by stating that all three environments influence an individual's decision to participate to the same extent, we focus on the created environment of a virtual community, represented by user-generated content. Little research has been carried out so far investigating the role of user-generated content on the usage of virtual communities. Barnatt (1998) examines how a company-hosted virtual community can be utilised by a bank. The author focuses on the imposed environment that a bank should provide, and states that a broad range of forum topics and additional content unrelated to finance should be provided by the community. Furthermore, he argues that banks should add topics that are more interesting for people in general, such as news, entertainment or gossip, rather than being limited to offering savings plans in order to attract a larger number of users (Barnatt, 1998). This assertion is confirmed by Baym (1993) who shows, by means of an ethnographic study of a newsgroup, that individuals are primarily attracted by high volumes of information on specific topics. These two studies highlight the importance of topic relevance. However, they focus on content as an imposed environment instead of as a user-generated environment.

Wang et al. (2012) examine the level of user interest in and their perceived value of a topic discussed by the community using the concept of *issue involvement*. Issue involvement is understood as an "enduring type of involvement" (Wang et al., 2012, p. 201). Wang et al. (2012) show that issue involvement has a higher impact on user commitment than system factors or social factors. Thus, users are

more likely to become active in a virtual community, if the topic under discussion is relevant and interesting to them, hence increasing its perceived value (Wang et al., 2012). This argument is in line with earlier work on virtual communities, indicating that one of the main reasons for individuals to join a community is to locate and exchange information (Phang et al., 2010; Wang et al., 2012).

Based on these findings, Wang et al. (2012) suggest that community moderators should present topics that are of interest to members to motivate participation. Such moderators should also manage the consistency of subjects discussed and select interesting topics for discussion that are consistent with the company's position. The importance of community content is also confirmed by Casaló et al. (2007) and Chompis et al. (2014). The latter authors examine user satisfaction with B2B communication in a virtual financial community. Based on a survey among users of a leading virtual financial community, they show that user satisfaction is driven mainly by content, social ties, and technology. However, nothing is stated about the significance of the content of topics in the literature to date.

Thus, having discussed prior literature through the lens of Social Cognitive Theory, we argue that topics, being a major part of the created environment in virtual communities, influence users' issue involvement. Thus, the following hypothesis is formulated.

H1: The level of issue involvement by users in a virtual financial community varies between topics.

In addition to topics, it can be assumed that the type of contribution also influences user issue involvement. The literature on virtual communities reveals that knowledge exchange is one of the most important factors for explaining why individuals use virtual meeting-places (Wasko and Faraj, 2000). According to Ridings et al. (2002), there are two generic modes of knowledge exchange: individuals can either receive or provide information. Receiving information can be achieved by simply reading the existing content or by asking a question. Providing information involves posting answers to particular questions or posting statements, which are unrelated to questions. Thus, relevant content can be posted in form of questions, answers or statements. Ridings et al. (2002) state that providing knowledge for other users in a virtual community involves a greater level of active involvement.

Henning-Thurau et al. (2004) examine the motives why customers provide information on the internet and engage in digital word-of-mouth communication. Their results show that the main motives for customer engagement are their need for social interaction, economic incentives and the concern for other community members as well as the possibility to improve "their own self-worth" (Henning-Thurau et al., 2004, p. 39).

In conclusion, it can be assumed that improving users' own self-worth or ability to socially interact with others can be more effectively supported by certain modes of knowledge exchange, such as providing answers and statements as an alternative to just asking questions. Thus, the following hypotheses are formulated:

H 2.1: The posting of a larger number of questions by a given user has a negative impact on user issue involvement in a virtual financial community.

H 2.2: The provision of a larger number of answers by a given user has a positive impact on user issue involvement in a virtual financial community.

H 2.3: The provision of a larger number of statements by a given user has a positive impact on user issue involvement in a virtual financial community.

In addition to the topic and type of contribution, it can be assumed that the responsiveness of users towards others influences the overall user issue involvement (Ridings et al., 2002). The authors develop a three-item scale to measure the concept of responsiveness in the context of virtual communities, based on a scale by Gefen and Keil (1998) that examines the responsiveness of system developers in an implementation context. In their scale, Ridings et al. (2002) combine both the quantity and the timeliness of user responses to posts. According to the authors, user responsiveness is critical for the definition of a virtual community. It is assumed that users develop an attachment to the community and thus visit and contribute on a regular basis (Hiltz and Wellman, 1997). Earlier work by Kramer (1999) shows that repeated interactions between users over time develops trust which positively influ-

ences knowledge exchange. In addition, if an individual quickly and frequently responds to a post, it is assumed that the individual has a high level of competence in the exchange of accurate and valuable information on a particular topic of interest (Ridings et al., 2002). Moreover, a high level of responsiveness shows a high degree of cooperative intention, which in turn supports the “reciprocal nature of the community itself” (Ridings et al., 2002, p. 277). Although the literature does not provide an indication of the level of responsiveness that is needed to become an active member of the community, it is shown that an ongoing exchange is crucial for virtual communities to survive and succeed (Smith, 1999).

Given this background, we argue that a greater volume of responses to user posts for individual topics positively influences user issue involvement. In addition, we assume that a higher level of frequency in interaction for individual topics may lead to a higher level of user issue involvement. Thus, the following hypotheses can be formulated.

H 3.1: The number of posts on a topic has a positive impact on the level of user involvement in a virtual financial community.

H 3.2: The frequency of user interaction has a positive impact on the level of user involvement in a virtual financial community.

3 Methodology and data

3.1 Procedure

To address the hypotheses, we collected data from three virtual financial communities that were selected in a three-stage procedure. First, we determined a group of the most significant financial virtual communities from internet research. Communities were identified using the search terms banking, insurance, credit accounts, loans, personal investments, investment, finance, life insurance as well as property and casualty insurance. The terms reflect the three major customer-facing segments (60% market share) of the financial services industry (Chui et al., 2012, p. 69). German-based as well as international virtual communities were identified as we focused on communities accessible by Germans (i.e. English and German speaking) in order to have a homogenous group for studying the distinguishing properties of the various communities (Algesheimer et al., 2005). To ensure a sufficient level of activity and content, communities with less than 2,000 users were excluded. Following Jones (1995), we checked that there was a high level of member stability as well as sufficiently high traffic volume (Ridings et al., 2002). A list of 37 financial virtual communities was identified.

Second, we excluded 17 virtual communities, based on an insufficient level of customer-to-customer communication within the community, e.g., only content from the community provider was posted or the majority of users were financial industry professionals, such as stock traders or asset managers. This resulted in a list of 20 financial virtual communities. Figure 1 shows these communities.

Third, following Algesheimer et al. (2005) and Faraj et al. (2015), three virtual communities were chosen for the content analysis. We selected one community from each quadrant (Figure 1), namely Comdirect Bank Forum, which is the only community in the second quadrant, wallstreet:online, which is the community with the largest number of posts of communities in the third quadrant, and Consorsbank Community, being the newest community in the fourth quadrant.

The three financial virtual communities vary in terms of size (from a small number of members to a large member-base) and age (from relatively longstanding to one of the most recently established). All three financial virtual communities are German-speaking. As we focus on company-hosted communities, all three communities are embedded in company websites. Two are embedded in the websites of financial service providers, while wallstreet:online can be viewed as a control community as it is operated by an independent news provider rather than a financial services company. Despite all three communities having a moderator, the curated content added is negligible, thus ensuring a high degree of interaction between customers.

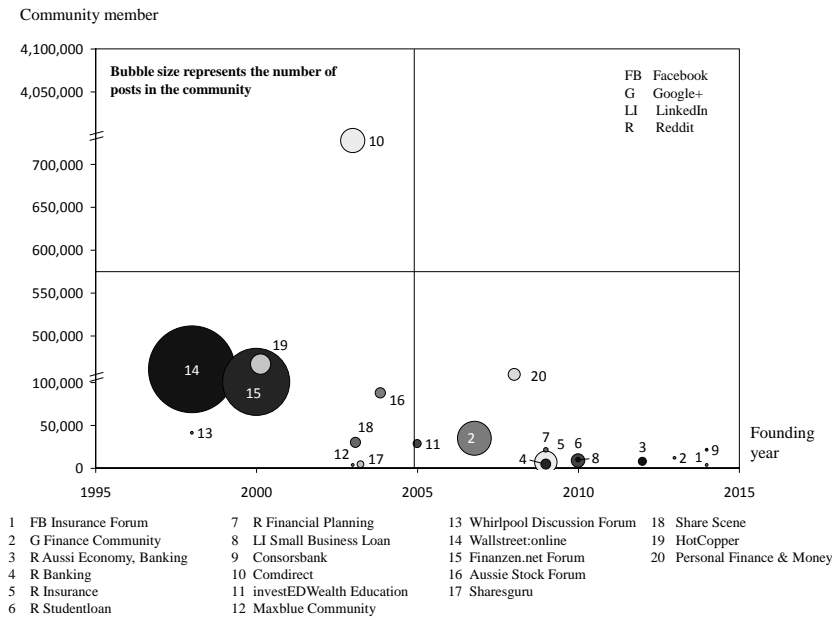


Figure 1: List of significant virtual financial communities

3.2 Content analysis

We use an inductive approach based on the development of a coding scheme. Data was gathered from the selected communities over a time period of 50 days (1 Aug 2015 to 19 Sept 2015) following the approach of Faraj et al. (2015). All posts published during the period of observation were collected for our study, independent of whether the thread had been started before or within this period. In addition to the content of each post, metadata was collected in terms of the time and date the post was published, the name of the user who posted and the thread headline. In total, 8,855 posts were collected from a total of 1,447 users across the three communities.

To code the posts, first, two of the article's authors screened all of the posts and defined the initial topic categories. Each post could be assigned to one or more categories, due to the fact that certain posts contained content that referred to several categories and thus indirectly suggested two (or more) topics in one statement (e.g. "stock market discussion and taxes"). Second, a third researcher moderated a joint discussion between the researchers to find a consensus during which the suggested categories were slightly renamed and a few categories deemed to be significant were added. Third, the two researchers again independently coded the posts by assigning them to these categories. If codifications differed, the differences were resolved by a second round of discussion between the two researchers. In total, we identified 26 topics, grouped into four higher-order categories (Table 1).

Category	Topic	Description
Industry-related topics	Taxes	Comparison of taxation of physical and synthetic financial products, taxation of payouts, taxation exemptions, tax returns.
	Legal	Reporting obligations for shareholders, allocation of responsibility with regard to tax liabilities for certain investments.
	Economic condition	World events such as the Euro crisis or refugee crisis, interest rate policy, actual industry data and trends, new technologies, politics.
	Stock market discussion	Current performance of indices or groups of stocks, i.e., losses and gains, performance analysis.
Bank-related topics	Technical support	Problems with the provider's website, login failures, problems in real life, e.g. cash withdrawals, contactless payments.

ics	Fees	Fees in relation to accounts, cash withdrawals and bank transactions, e.g. money transfers, purchase or sale of financial products.
	Processing	Questions on account management, automatic vs. manual reinvestment, dividend payout, e.g., in the form of shares or cash, rebalancing portfolios and order management, e.g., placing stop-loss orders.
	Support tools	Retirement planning tools, financial calculators, reporting tools for financial investments, charting tools.
	Special offers	Special offers related to account opening or specific financial products, e.g., star-of-the-month funds, trading games.
	Ideas	Ideas from users in relation to online banking applications, financial products for saving plans, app functionality.
	Accounts	Accounts provided by a bank, including current accounts, savings accounts, cheque accounts, credit cards.
	Credit	Debt-related instruments, e.g., bank account overdrafts, mortgages, debt for investments.
	Documents	Investment and finance-related documents including tax statements, or for employers, e.g., government-backed asset-creation schemes.
Investment strategies	Investment strategy	Different types of investment strategy, including active vs. passive investment strategies, monthly rates vs. one-time investment, asset allocation, portfolios of star investors, physical vs. synthetic replicas of portfolios.
	Payout	Discussions on the type, amount and timing of investment payouts.
Financial products	Commodities	E.g., gold, silver, oil.
	Funds	Exchange-traded funds, mutual funds, hedge funds, general discussion on active investment funds vs. passive investment funds.
	Bonds	Different types of bonds, including government bonds, corporate bonds.
	Call money	Call accounts provided by different providers.
	Savings plan	Different types of saving plans, e.g., for retirement provision with upfront or monthly investments.
	Currency	Foreign exchange (FX) transaction, FX markets, spot and forward exchange rates.
	CFD	Different types of contracts for difference (CFD), derivatives.
	Options	Different types of options.
	Certificates	Different types of certificated investments.
	Stocks	Individual corporate stocks.

Table 1. Description of the identified topics

3.3 Measures

Based on the hypotheses, the following independent measures are developed: The first independent variable (H1) is the topic (see Table 1 for the list of identified topics).

The second independent variable is related to the type of contribution. To measure this variable we differentiate observed posts into questions, answers and statements (H2.1-2.3) within each topic. Answers are always related to a question, whereas statements are unrelated to questions.

The third independent variable (H3.1) is a measure of the number of posts per user per topic.

The fourth independent variable (H3.2) measures the frequency of user interaction in terms of the time difference between posts in a thread, i.e., capturing how fast users are contributing to a prior post.

In order to examine user issue involvement, the number of views per post per topic is used as the dependent variable. Our choice for this measure is based on two assumptions. First, following

Royo-Vela and Casamassima (2011), belonging to a virtual community can be described in terms of a three-dimensional construct embracing active, passive and non-participating belonging. All three types of belonging have a positive impact on customer satisfaction, affective commitment and on word-of-mouth behaviour (Royo-Vela and Casamassima, 2011), which aids in establishing long-term customer relationships. Thus, we are interested not only in the active or registered members, but also in external users. Second, we assume that the average number of views per post per topic represents most of the measures of issue involvement proposed in the survey by Wang et al. (2012). We argue that users (active, passive or non-participating ones) for which the following statements by Wang et al. (2012) of issue involvement apply for a certain topic, will most likely view this topic: “The issue discussed in the online community is: (1) important to me; (2) interesting to me, (3) related to me; (4) exiting to me; (5) means lot to me; (6) is appealing to me, (7) is fascinating to me, (8) is valuable to me and (9) is involving to me” (Wang et al., 2012, p. 205).

4 Results

4.1 Descriptive statistics

Figure 2 provides a comparison of the types of contribution, namely questions, answers and statements. Users of Consorsbank contribute mostly answers and questions, but less statements. In contrast, users of Comdirect share mostly statements and answers and few questions. Finally, users of wallstreet:online contribute far more statements than other types of contribution.

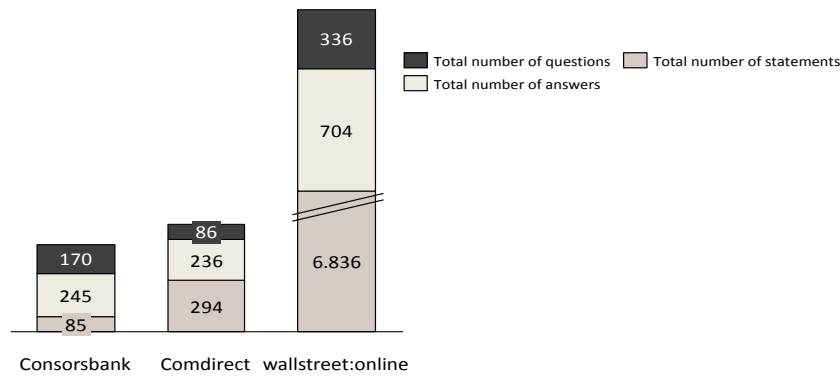


Figure 2: Comparison of type of contribution

Table 2 provides descriptive statistics on user statistics. The total number of active users identified in the period of observation as well as the number of posts per active user. Finally, the average response time in hours to a preceding post is provided.

User statistics	Consorsbank	Comdirect	wallstreet:online
Active users within 50 days (% of total users)	161 (0.76 %)	49 (0.01 %)	1,237 (0.27%)
Posts per active user	2.86	12.57	6.29
Average response time in hours to the preceding post in a thread	59.21	43.15	22.71

Table 2: Descriptive statistics covering 50 days

Figure 3 presents the distribution of posts per topic across the communities. Our results show that more than half of the content in Consorsbank is generated for topics related to the bank, i.e., internal bank topics. This is consistent for both bank related communities. The second most significant category in which content is generated in both communities relates to financial products. In contrast, posts on

financial products dominate the content in wallstreet:online, followed by industry-related topics that account in total for almost 75% of the content.

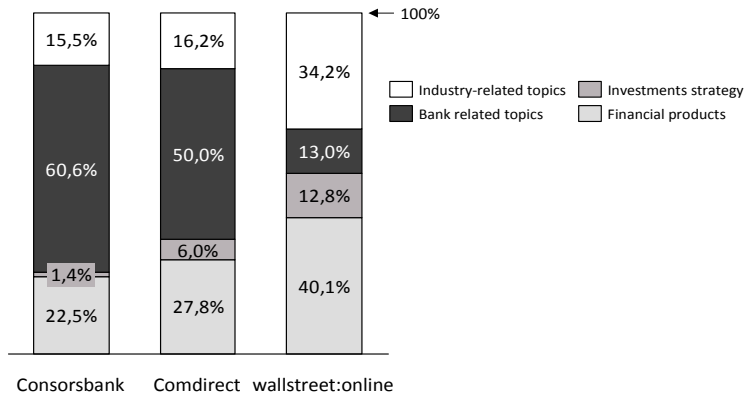


Figure 3: Distribution of posts per topic

Moreover, the average number of views per post per topic was identified for Consorsbank, Comdirect and wallstreet:online respectively. Table 3 presents the average number of views per post per topic. The average number of views per post per topic differs among the three communities. The results are further discussed in section 4.2.

	Consorsbank	Comdirect	wallstreet:online
Industry-related topics	231.90	24,196.87	213,703.68
Bank-related topics	225.80	2,254.28	44,799.52
Investment strategy	273.45	258.0	17,074.58
Financial products	205.64	1,044.08	109,962.11

Table 3: Average number of views per post per topic

4.2 Test of hypotheses

The hypotheses are tested either with ANOVA (H1) or regression analysis (H2.1 to H3.2). Table 4 presents the results. In the following, we present the results of the tests of hypotheses H1 to H3. Table 4 provides an overview of these results for all three online communities.

	Consorsbank	Comdirect	wallstreet:online
H 1	$F(3, 1) = 3.021, p < .05$	$F(3, 1) = 579,68, p < .001$	$F(3, 1) = 87,786, p < .001$
H 2.1	$p < .05 (-3.127), \beta = -0.232$	ns $(-0.933), \beta = -0.169$	ns $(-1.033), \beta = -0.309$
H 2.2	$p = .056 (2.662), \beta = 0.613$	$p < .001 (4.922), \beta = 1.886$	ns $(-0.758), \beta = -0.197$
H 2.3	$p < .05 (3.409), \beta = 0.577$	ns $(-1.216), \beta = -0.344$	$p < .001 (13.774), \beta = 1.387$
H 3.1	ns $(-0.480), \beta = -0.137$	ns $(-0.799), \beta = -0.164$	ns $(-0.381), \beta = -0.077$
H 3.2	$p < .001 (18.104), \beta = 0.976$	$p < .001 (4.047), \beta = 0.637$	$p < .001 (12.626), \beta = 0.932$

Table 4: Test statistics

Hypothesis H1, examining whether the level of issue involvement of users in a virtual financial community differs between topics, is supported in each of the communities. However, conducting Tukeys-HSD- and Games-Howell-post-hoc tests shows that the most relevant category differs in each community based on the average number of views per post per topic (Table 4). Topics related to investment strategies are most important for users of Consorsbank (Games-Howell post-hoc test, $p < .05$). The

other three categories are at a similar level (Games-Howell post-hoc tests, ns). For users of the virtual community hosted by Comdirect, industry-related topics are most important (24,196.87 views per post per topic; Tukeys-HSD post-hoc test, $p < .001$) while the remaining three are again at the same level focusing on the number of views per post per topic (Tukeys-HSD post-hoc tests, ns). Industry-related topics are also most valuable for users of the wallstreet:online community with an average of 213,703.68 views (Tukeys-HSD post-hoc test, $p < .001$), followed by financial products (109,962.11 views; Tukey-HSD post-hoc test, $p < .001$) and bank-related topics (44,799.52 views on average). Topics regarding investment strategies are perceived as least important with an average of 17,074.58 views (Tukeys-HSD post-hoc test, $p < .001$).

Hypothesis H2.1, stating that a larger number of questions in a virtual financial community has a negative impact on user issue involvement, is only supported for Consorsbank.

Hypothesis H2.2, stating that a larger number of answers in a virtual financial community has a positive impact on user issue involvement, is supported for Consorsbank as well as for Comdirect.

Hypothesis H2.3, stating that a larger number of statements in a virtual financial community has a positive impact on user issue involvement, is supported for Consorsbank and wallstreet:online.

Hypothesis H3.1, stating that a larger number of posts per user influences user issue involvement in a positive way, cannot be confirmed for any of the virtual financial communities analysed.

Hypothesis H3.2, examining whether a higher frequency of user interaction has a positive impact on user issue involvement in a virtual financial community, can be confirmed for all three communities.

5 Discussion

Our results provide evidence for the research question as to which forms of content lead to greater issue involvement by participants in virtual financial communities. We can show that the topics and type of contributed content matter significantly in regard to an increased level of issue involvement and that the topics of interest differ between communities. Hence, the results of previous research (Baym, 1993; Barnatt, 1998; Wang et al., 2012), indicating the importance of relevant content in motivating people to use virtual communities, can be confirmed in the context of virtual financial communities. In particular, with regard to the two bank-hosted virtual communities, posts on investment strategies (Consorsbank) and industry-related topics (Comdirect) are the most important based on the average number of views per post per topic. Consorsbank seems to have more customers interested in portfolio planning based on financial products bought from the bank who do not want to rely on advisors from Consorsbank. In comparison to Consorsbank, Comdirect attracts more retail banking customers, who are less involved in trading. In both cases, the number of posts related to the two topics is relatively small, however their level of attraction for users is significant. In contrast to wallstreet:online, industry-related topics, especially stock market discussions, are the most important for users. It seems that virtual financial communities do indeed fulfill their intended function by allowing for information exchanges between users in relation to financial topics.

Industry-related issues are also important for users of wallstreet:online. This result can be explained by the large number of ongoing stock market discussions, which seem to be a mainstay of wallstreet:online both in terms of the number of views and posts. Moreover, when compared to the bank-hosted communities, bank-related issues are least important for users of wallstreet:online even though it is the largest community. This result indicates that people prefer to discuss bank-related topics in communities associated with financial service providers even if their discussions might be negative in relation to the bank. An explanation for this might be that users are seeking additional information from a moderator or other users who may have experienced similar issues in relation to the bank rather than searching for analogous experiences with other banks as are more likely to be found on wallstreet:online.

The empirical evidence regarding the types of contribution reveals that answers and statements lead to a higher issue involvement for users than questions. The number of questions only seems to play a

negative statistically significant role for users at Consorsbank. An explanation might be found in the type of user interactions. Information exchange at Consorsbank is mainly based on question-answer interactions. A large number of users open threads by asking a question concerning a specific technical problem or a financial product provided by Consorsbank. The threads are usually closed after the particular question is sufficiently answered by others. Hence, questions limit the extent of general information exchange and thus the development of user issue involvement. In contrast, users on Comdirect generally provide knowledge in the form of multiple answers, which leads to a greater level of discussion regarding the correct answer.

On wallstreet:online, users mostly post statements leading to a positive effect on user issue involvement. An explanation can be found firstly in the type of topics discussed at wallstreet:online. In comparison to Consorsbank or Comdirect, information exchange is only minimally driven by narrow discussion on specific topics. Rather, open discussions attracting significant numbers of posts are often based on broader topics such as investment strategy or economic conditions. As these topics do not lose their currency, users on wallstreet:online continue to contribute to threads that may be several months or even years old. A second explanation for the positive impact of statements might be that users of wallstreet:online use the community to a greater degree for general communication and social exchange. In comparison, users in bank-hosted communities, such as Consorsbank, use the community primarily to source answers to specific questions that they have posted. In light of this fact, it can be argued that although bank-hosted communities and bank-independent communities fulfil different roles for users, bank-hosted communities might profit from encouraging broader open-ended discussions as a complement to the current targeted question-answer postings they support.

Moreover, our research shows that the impact of the quantity of posts on user issue involvement cannot be confirmed for any of the virtual financial communities analysed. This result is in line with studies by Gefen and Keil (1998), reporting that although a higher number of posts leads to an increase in trust and illustrates integrity, it does not lead to an increase in IT use (Gefen and Keil, 1998). This fact is especially striking for the two bank-hosted virtual communities. The most interesting topic at Consorsbank (Comdirect) has the lowest (second lowest) number of posts per user in the community. An explanation might be found in the number of threads dominated by a small number of individual users. We saw in several cases that specific users were highly involved in particular threads, posting constantly over time. In these threads users primarily discussed their personal investment strategy or their point of view on certain topics. These types of threads inflated the number of posts noticeably without creating a high level of issue involvement for other users.

Finally, empirical evidence of the significant effect of user responsiveness in regard to the frequency of contribution confirms the importance of timely exchanges between users for the success of virtual communities. This result is in line with prior work by Kramer (1999) and Ridings et al. (2002). An explanation is that users are attracted if ‘something’ happens more often in their thread or topic of interest. Passive as well as active users can log in regularly and expect to find new content, and it is disappointing if there are lengthy intervals between contributions. Thus, a constant flow of new information seems to be necessary to retain the level of interest in a topic.

6 Conclusion

This article is the first empirical study examining whether content as a user-created environment of virtual financial communities influences user issue involvement. We use the social cognitive theory as a theoretical basis of our inquiry. Our research offers three major contributions towards a deeper understanding of virtual financial communities.

The first contribution is that the topics that are discussed by users of three different online financial communities, matter significantly in regard to users’ issue involvement. We present a list of identified topics for the period of investigation. Our findings show that the popularity of particular topics differ among the three online communities. Thus, results by Casaló et al. (2007), Phang et al. (2010), Wang

et al. (2012) and Chompis et al. (2014) showing the importance of community content can be confirmed in the context of online financial communities. A practical implication of this is that designers and providers of virtual communities should focus on the identification of the most relevant and valuable topics for their users in order to motivate them to participate in their virtual community. Banks that only offer online services should foster investment strategies and industry-related topics having broad appeal that could potentially benefit from the input of active users. Suitable incentives (e.g., reduction in account fees) could be offered for contributions in relation to these topics.

The second contribution is that the type of interaction in terms of questions, answers and statements can foster user issue involvement. Earlier work on virtual communities indicates that the success of online communities is fundamentally based on user interaction in the form of postings and responses, leading to a valuable exchange of information on a topic of interest (Ridings et al., 2002). We provide evidence in our study that the interactions between users do not have to be classic question-answer interactions. Our results show that a valuable information exchange can be supported by answers and statements instead of question-answer interactions. Thus, a practical implication of this finding might be that community providers foster more open discussions on broader topics instead of only supporting strict question-answer interactions between users. One way to avoid the latter type of interaction is to avoid closing threads immediately after a question is answered. Users might contribute to a thread long after the thread was opened and an initial answer is provided.

The third contribution is that the responsiveness of users with regard to the quantity of contributions has no impact on the issue involvement of users for a topic. We provide evidence that those topics, which were viewed the most in a community, had the least number of posts. Information exchange which is valuable to users seems to be independent of the quantity of content. Thus, community designers and providers should focus primarily on identifying relevant and valuable topics for their customers, instead of focusing on simply increasing the quantity of contributions.

In contrast, user responsiveness with regard to timeliness of postings shows a highly significant impact on user issue involvement. Hence, findings by Kramer (1999), Ridings et al. (2002) and Smith (1999) showing the importance of a timely exchange between users can be confirmed for online financial communities. A practical implication might be to employ a community moderator who can respond to posts when no other user chooses to respond in a given timeframe. Moreover, given the contrasting results related to user responsiveness, it might be beneficial to more rigorously differentiate between quantity and timeliness in further research on virtual financial communities.

There are several limitations to take into account. Firstly, based on our intensive investigation of three German-speaking online financial communities using a qualitative research approach, we were able to investigate the importance of content in online financial communities – an angle that has not been addressed in previous studies of online communities. The drawback of this research approach is that the generalisability of our findings to a larger number of online financial communities is limited. Also our findings are solely based on an inductive content analysis. Additional research methods such as an experimental study should be used to verify and complement the results of this investigation.

Further research could explore the effect of content on other virtual financial communities identified in Figure 1 to test our findings for robustness and increase the generalisability of the results. Moreover, other online channels of banks (e.g. Facebook) could be included. Future research should not only investigate the impact of topics, the types of contribution and the responsiveness, but also other factors such as the quality of posts which may lead to a moderator effect on user issue involvement.

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